

SEQUENCE LISTING

5 (1) GENERAL INFORMATION:

5 (i) APPLICANT: Tsien, Roger Y.
Heim, Roger

10 (ii) TITLE OF INVENTION: Tandem Fluorescent Protein
Constructs

15 (iii) NUMBER OF SEQUENCES: 25

15 (iv) CORRESPONDENCE ADDRESS:

15 (A) ADDRESSEE: Fish & Richardson P.C.
(B) STREET: 4225 Executive Square #1400
(C) CITY: San Diego
(D) STATE: California
(E) COUNTRY: USA
20 (F) ZIP: 92037

25 (v) COMPUTER READABLE FORM:

25 (A) MEDIUM TYPE: Floppy disk
(B) COMPUTER: IBM PC compatible
(C) OPERATING SYSTEM: PC-DOS/MS-DOS
(D) SOFTWARE: PatentIn Release #1.0, Version #1.25

30 (vi) CURRENT APPLICATION DATA:

30 (A) APPLICATION NUMBER:
(B) FILING DATE:
(C) CLASSIFICATION:

35 (viii) ATTORNEY/AGENT INFORMATION:

35 (A) NAME: Haile, Lisa A.
(B) REGISTRATION NUMBER: 38,347
(C) REFERENCE/DOCKET NUMBER: 07257/030001/UC 96-160-1

40 (ix) TELECOMMUNICATION INFORMATION:

40 (A) TELEPHONE: 619-678-5070
(B) TELEFAX: 619-678-5099

(2) INFORMATION FOR SEQ ID NO:1:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 717 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: single
- (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: cDNA

(ix) FEATURE:

(A) NAME/KEY: CDS
(B) LOCATION: 1..717

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1:

ATG AGT AAA GGA GAA GAA CTT TTC ACT GGA GTT GTC CCA ATT CTT GTT

48 Met Ser Lys Gly Glu Glu Leu Phe Thr Gly Val Val Pro Ile Leu Val

1 5 10 15

AA TTA GAT GGT GAT GTT AAT GGG CAC AAA TTT TCT GTC AGT GGA GAG

96 Glu Leu Asp Gly Asp Val Asn Gly His Lys Phe Ser Val Ser Gly Glu

20 25 30

CCT GAA CCT GAT GCA ACA TAC GGA AAA CTT ACC CTT AAA TTT ATT TGC

144 Gly Glu Gly Asp Ala Thr Tyr Gly Lys Leu Thr Leu Lys Phe Ile Cys

35 40 45

ACT ACT CGA AAA GTC CCT GTT CCA TGG CCA ACA CTT GTC ACT ACT TTC

192 Thr Thr Gly Lys Leu Pro Val Pro Trp Pro Thr Leu Val Thr Thr Phe

50 55 60

TCT TAT GGT GTT CAA TGC TTT TCA AGA TAC CCA GAT CAT ATG AAA CGG

240
Ser Tyr Gly Val Gln Cys Phe Ser Arg Tyr Pro Asp His Met Lys Arg

5
65 70 75 80

CAT GAC TTT TTC AAG AGT GCC ATG CCC GAA GGT TAT GTA CAG GAA AGA

0
288
His Asp Phe Phe Lys Ser Ala Met Pro Glu Gly Tyr Val Gln Glu Arg

15
85 90 95

ACT ATA TTT TTC AAA GAT GAC GGG AAC TAC AAG ACA CGT GCT GAA GTC

20
336
Thr Ile Phe Phe Lys Asp Asp Gly Asn Tyr Lys Thr Arg Ala Glu Val

100 105 110

25
AAG TTT GAA GGT GAT ACC CTT GTT AAT AGA ATC GAG TTA AAA GGT ATT

30
384
Lys Phe Glu Gly Asp Thr Leu Val Asn Arg Ile Glu Leu Lys Gly Ile

115 120 125

GAT TTT AAA GAA GAT GGA AAC ATT CTT GGA CAC AAA TTG GAA TAC AAC

35
432
Asp Phe Lys Glu Asp Gly Asn Ile Leu Gly His Lys Leu Glu Tyr Asn

130 135 140

40

TAT AAC TCA CAC AAT GTA TAC ATC ATG GCA GAC AAA CAA AAG AAT GGA

480

5 Tyr Asn Ser His Asn Val Tyr Ile Met Ala Asp Lys Gln Lys Asn Gly

145

150

155

160

10 ATC AAA GTT AAC TTC AAA ATT AGA CAC AAC ATT GAA GAT GGA AGC GTT

528

Ile Lys Val Asn Phe Lys Ile Arg His Asn Ile Glu Asp Gly Ser Val

15 165 170 175

100 90 80 70 60 50 40 30 20 10 0

CAA CTA GCA GAC CAT TAT CAA CAA AAT ACT CCA ATT GGC GAT GGC CCT

576

Gln Leu Ala Asp His Tyr Gln Gln Asn Thr Pro Ile Gly Asp Gly Pro

180

185

190

20 GTC CTT TTA CCA GAC AAC CAT TAC CTG TCC ACA CAA TCT GCC CTT TCG

624

Val Leu Leu Pro Asp Asn His Tyr Leu Ser Thr Gln Ser Ala Leu Ser

30 195

200

205

35 AAA GAT CCC AAC GAA AAG AGA GAC CAC ATG GTC CTT CTT GAG TTT GTA

672

Lys Asp Pro Asn Glu Lys Arg Asp His Met Val Leu Leu Glu Phe Val

40 210

215

220

ACA GCT GCT GGG ATT ACA CAT GGC ATG GAT GAA CTA TAC AAA TA

717

45 Thr Ala Ala Gly Ile Thr His Gly Met Asp Glu Leu Tyr Lys

225

230

235

5 (2) INFORMATION FOR SEQ ID NO:2:

10 (i) SEQUENCE CHARACTERISTICS:

15 (A) LENGTH: 238 amino acids
(B) TYPE: amino acid
(D) TOPOLOGY: linear

20 (ii) MOLECULE TYPE: protein

25 (xi) SEQUENCE DESCRIPTION: SEQ ID NO:2:

30 Met Ser Lys Gly Glu Glu Leu Phe Thr Gly Val Val Pro Ile Leu Val
1 5 10 15
35 Glu Leu Asp Gly Asp Val Asn Gly His Lys Phe Ser Val Ser Gly Glu
20 25 30
40 Gly Glu Gly Asp Ala Thr Tyr Gly Lys Leu Thr Leu Lys Phe Ile Cys
35 40 45
50 Thr Thr Gly Lys Leu Pro Val Pro Trp Pro Thr Leu Val Thr Thr Phe
55 60
65 Ser Tyr Gly Val Gln Cys Phe Ser Arg Tyr Pro Asp His Met Lys Arg
70 75 80
85 His Asp Phe Phe Lys Ser Ala Met Pro Glu Gly Tyr Val Gln Glu Arg
90 95
100 Thr Ile Phe Phe Lys Asp Asp Gly Asn Tyr Lys Thr Arg Ala Glu Val
105 110
115 Lys Phe Glu Gly Asp Thr Leu Val Asn Arg Ile Glu Leu Lys Gly Ile
120 125
130 Asp Phe Lys Glu Asp Gly Asn Ile Leu Gly His Lys Leu Glu Tyr Asn
135 140
145 Tyr Asn Ser His Asn Val Tyr Ile Met Ala Asp Lys Gln Lys Asn Gly
150 155 160
165 Ile Lys Val Asn Phe Lys Ile Arg His Asn Ile Glu Asp Gly Ser Val
170 175
180 Gln Leu Ala Asp His Tyr Gln Gln Asn Thr Pro Ile Gly Asp Gly Pro
185 190
195 Val Leu Leu Pro Asp Asn His Tyr Leu Ser Thr Gln Ser Ala Leu Ser
200 205

Lys Asp Pro Asn Glu Lys Arg Asp His Met Val Leu Leu Glu Phe Val
210 215 220

5 Thr Ala Ala Gly Ile Thr His Gly Met Asp Glu Leu Tyr Lys
225 230 235

10 (2) INFORMATION FOR SEQ ID NO:3:

15 (i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 8 amino acids
(B) TYPE: amino acid
(C) STRANDEDNESS: single
(D) TOPOLOGY: linear

20 (ii) MOLECULE TYPE: peptide

25 (xi) SEQUENCE DESCRIPTION: SEQ ID NO:3:

30 Ser Gln Asn Tyr Pro Ile Val Gly
1 5

35 (2) INFORMATION FOR SEQ ID NO:4:

30 (i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 10 amino acids
(B) TYPE: amino acid
(C) STRANDEDNESS: single
(D) TOPOLOGY: linear

35 (ii) MOLECULE TYPE: peptide

5 (xi) SEQUENCE DESCRIPTION: SEQ ID NO:4:

10 Lys Ala Arg Val Leu Ala Glu Ala Met Ser
1 5 10

15 (2) INFORMATION FOR SEQ ID NO:5:

20 (i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 10 amino acids
(B) TYPE: amino acid
(C) STRANDEDNESS: single
(D) TOPOLOGY: linear

25 (ii) MOLECULE TYPE: peptide

30 (xi) SEQUENCE DESCRIPTION: SEQ ID NO:5:

35 Pro Ser Pro Arg Glu Gly Lys Arg Ser Tyr
1 5 10

40 (2) INFORMATION FOR SEQ ID NO:6:

45 (i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 5 amino acids
(B) TYPE: amino acid
(C) STRANDEDNESS: single
(D) TOPOLOGY: linear

50 (ii) MOLECULE TYPE: peptide

55 (xi) SEQUENCE DESCRIPTION: SEQ ID NO:6:

60 Tyr Val Ala Asp Gly
1 5

5 (2) INFORMATION FOR SEQ ID NO:7:

10 (i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 8 amino acids
- (B) TYPE: amino acid
- (C) STRANDEDNESS: single
- (D) TOPOLOGY: linear

15 (ii) MOLECULE TYPE: peptide

20 (xi) SEQUENCE DESCRIPTION: SEQ ID NO:7:

25 Met Phe Gly Gly Ala Lys Lys Arg
1 5

30 (2) INFORMATION FOR SEQ ID NO:8:

35 (i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 10 amino acids
- (B) TYPE: amino acid
- (C) STRANDEDNESS: single
- (D) TOPOLOGY: linear

40 (ii) MOLECULE TYPE: peptide

45 (xi) SEQUENCE DESCRIPTION: SEQ ID NO:8:

50 Gly Val Val Asn Ala Ser Ser Arg Leu Ala
1 5 10

55 (2) INFORMATION FOR SEQ ID NO:9:

60 (i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 9 amino acids
- (B) TYPE: amino acid
- (C) STRANDEDNESS: single
- (D) TOPOLOGY: linear

65 (ii) MOLECULE TYPE: peptide

70 (xi) SEQUENCE DESCRIPTION: SEQ ID NO:9:

75 Leu Ile Ala Tyr Leu Lys Lys Ala Thr

(2) INFORMATION FOR SEQ ID NO:10:

5 (i) SEQUENCE CHARACTERISTICS:
0 (A) LENGTH: 7 amino acids
0 (B) TYPE: amino acid
0 (C) STRANDEDNESS: single
0 (D) TOPOLOGY: linear

15 (ii) MOLECULE TYPE: peptide

20 (xi) SEQUENCE DESCRIPTION: SEQ ID NO:10:

25 Val Lys Met Asp Ala Glu Phe
20 1 5

(2) INFORMATION FOR SEQ ID NO:11:

30 (i) SEQUENCE CHARACTERISTICS:
35 (A) LENGTH: 17 amino acids
35 (B) TYPE: amino acid
35 (C) STRANDEDNESS: single
35 (D) TOPOLOGY: linear

40 (ii) MOLECULE TYPE: peptide

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:11:

Arg Phe Leu Ala Glu Gly Gly Val Arg Gly Pro Arg Val Val Glu
40 1 5 10 15
His

5 (2) INFORMATION FOR SEQ ID NO:12:

10 (i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 13 amino acids
(B) TYPE: amino acid
(C) STRANDEDNESS: single
(D) TOPOLOGY: linear

15 (ii) MOLECULE TYPE: peptide

20 (xi) SEQUENCE DESCRIPTION: SEQ ID NO:12:

25 Asp Arg Val Tyr Ile His Pro Phe His Leu Val Ile His
1 5 10

30 (2) INFORMATION FOR SEQ ID NO:13:

35 (i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 8 amino acids
(B) TYPE: amino acid
(C) STRANDEDNESS: single
(D) TOPOLOGY: linear

40 (ii) MOLECULE TYPE: peptide

45 (xi) SEQUENCE DESCRIPTION: SEQ ID NO:13:

Lys Pro Ala Leu Phe Phe Arg Leu
1 5

50 (2) INFORMATION FOR SEQ ID NO:14:

55 (i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 30 amino acids
(B) TYPE: amino acid
(C) STRANDEDNESS: single
(D) TOPOLOGY: linear

60 (ii) MOLECULE TYPE: peptide

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:14:

Gln Pro Leu Gly Gln Thr Ser Leu Met Lys Arg Pro Pro Gly Phe
Ser 5 1 5 10 15
Pro Phe Arg Ser Val Gln Val Met Lys Thr Gln Glu Gly Ser
20 25 30

(2) INFORMATION FOR SEQ ID NO:15:

(i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 5 amino acids
(B) TYPE: amino acid
(C) STRANDEDNESS: single
(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:15:

Gly Gly Gly Gly Ser
1 5

(2) INFORMATION FOR SEQ ID NO:16:

(i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 22 amino acids
(B) TYPE: amino acid
(C) STRANDEDNESS: single
(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:16:

Gly Gly Gly Gly Gly Ser Met Phe Gly Gly Ala Lys Lys Arg
Ser 45 1 5 10 15
Gly Gly Gly Gly Gly Gly
20

(2) INFORMATION FOR SEQ ID NO:17:

5 (i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 35 amino acids
(B) TYPE: amino acid
(C) STRANDEDNESS: single
(D) TOPOLOGY: linear

10 (ii) MOLECULE TYPE: peptide

15 (xi) SEQUENCE DESCRIPTION: SEQ ID NO:17:

20 Ser Ile Gln Arg Met Lys Gln Leu Glu Asp Lys Val Glu Glu Leu Leu
25 Val Lys Asn Tyr His Leu Glu Asn Glu Val Ala Arg Leu Lys Lys Leu
30 Gly Glu Arg
35

25 (2) INFORMATION FOR SEQ ID NO:18:

30 (i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 6 amino acids
(B) TYPE: amino acid
(C) STRANDEDNESS: single
(D) TOPOLOGY: linear

35 (ii) MOLECULE TYPE: peptide

40 (xi) SEQUENCE DESCRIPTION: SEQ ID NO:18:

Ser Lys Val Ile Leu Phe
1 5

5 (2) INFORMATION FOR SEQ ID NO:19:

10 (i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 22 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: single
- (D) TOPOLOGY: linear

15 (ii) MOLECULE TYPE: DNA (oligonucleotide)

20 (xi) SEQUENCE DESCRIPTION: SEQ ID NO:19:

25 GGATCCCCCC GCTGAATTCA TG
22

30 (2) INFORMATION FOR SEQ ID NO:20:

35 (i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 15 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: single
- (D) TOPOLOGY: linear

40 (ii) MOLECULE TYPE: DNA (oligonucleotide)

45 (xi) SEQUENCE DESCRIPTION: SEQ ID NO:20:

AAATAATAAG GATCC
15

50 (2) INFORMATION FOR SEQ ID NO:21:

55 (i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 33 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: single
- (D) TOPOLOGY: linear

60 (ii) MOLECULE TYPE: DNA (primer)

5 (xi) SEQUENCE DESCRIPTION: SEQ ID NO:21:

GGTAAGCTTT TATTGTATA GTTCATCCAT GCC
33

10 5 (2) INFORMATION FOR SEQ ID NO:22:

15 (i) SEQUENCE CHARACTERISTICS:
10 (A) LENGTH: 24 base pairs
15 (B) TYPE: nucleic acid
20 (C) STRANDEDNESS: single
25 (D) TOPOLOGY: linear

25 (ii) MOLECULE TYPE: DNA (primer)

30 (xi) SEQUENCE DESCRIPTION: SEQ ID NO:22:

35 AGAAAGGCTA GCAAAGGAGA AGAA
40 24

45 (2) INFORMATION FOR SEQ ID NO:23:

50 (i) SEQUENCE CHARACTERISTICS:
55 (A) LENGTH: 25 base pairs
60 (B) TYPE: nucleic acid
65 (C) STRANDEDNESS: single
70 (D) TOPOLOGY: linear

75 (ii) MOLECULE TYPE: DNA (primer)

80 (xi) SEQUENCE DESCRIPTION: SEQ ID NO:23:

85 TCAGTCTAGA TTTGTATAGT TCATC
90 25

95 (2) INFORMATION FOR SEQ ID NO:24:

100 (i) SEQUENCE CHARACTERISTICS:
105 (A) LENGTH: 10 amino acids
110 (B) TYPE: amino acid
115 (C) STRANDEDNESS: single
120 (D) TOPOLOGY: linear

125 (ii) MOLECULE TYPE: peptide

5
(xi) SEQUENCE DESCRIPTION: SEQ ID NO:24:

Met Arg Gly Ser His His His His His His
1 5 10

10
(2) INFORMATION FOR SEQ ID NO:25:

15
(i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 26 amino acids
(B) TYPE: amino acid
(C) STRANDEDNESS: single
(D) TOPOLOGY: linear

20
(ii) MOLECULE TYPE: peptide

25
(xi) SEQUENCE DESCRIPTION: SEQ ID NO:25:

30
Asp Ser Ser Met Thr Gly Gly Gln Gln Met Gly Arg Asp Leu Tyr Asp
Asp 1 5 10 15
Asp Asp Lys Asp Pro Pro Ala Glu Phe
20 25→

35
SEQ. ID. No.: 26

12
Ala Asn Pro Leu Tyr Lys Asp Ala Thr Asp Phe

40
SEQ. ID. No.: 27

14
Thr Ala Asn Pro Leu Tyr Lys Asp Ala Thr Ser Asp Phe
→

45
SEQ. ID. No.: 28

16
Gly Thr Ala Asn Pro Leu Tyr Lys Asp Ala Thr Ser Gly Asp Phe

50
SEQ. ID. No.: 29

18
Gly Thr Ala Asn Pro Leu Tyr Lys Asp Ala Thr Ser Gly Ser Thr
Asp Phe

SEQ. ID. No.: 30
20
Gly Thr Ala Asn Pro Leu Tyr Lys Asp Ala Thr Ser Gly Ser Thr
Gly Ser Asp Phe

5

SEQ. ID. No.: 31
22
Gly Thr Ala Asn Pro Leu Tyr Lys Asp Ala Thr Ser Gly Ser Thr
Gly Ser Gly Ser Asp Phe

LO

3.100537505 0.12500